

## Claims

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1. Piezoelectric actuator with
  - a multilayer structure of piezoelectric plies (2) and internal electrodes (3, 4, 5, 6) arranged between them,
  - a lateral contacting of the internal electrodes (3, 4, 5, 6) with external electrodes (7, 8; 14) in alternate directions, wherein, in the region between two piezoelectric plies (2), comprises an internal electrode (3, 5 or 4, 6) contacted on the opposite side in each case, a neutral phase without electrode layer is available on the other side in each case, wherein
  - at specified intervals, one electrode layer of the internal electrode (5, 6) that is contacted (9, 10) on one side always extends completely to the end of the other side, and the external electrode (7, 8) lying on the other side in each case thereby bridges over this layer to prevent a short circuit.
2. Piezoelectric actuator according to Claim 1, characterized in that
  - the contacting in alternate directions is designed in such a fashion that two internal electrodes (3, 5), which enclose an internal electrode (4) having opposite polarity, are contacted (10) jointly on one side in each case, wherein, in alternating fashion, one internal electrode (3), with formation of the neutral phase, is not extended to the end of the piezoelectric plies (2) in each case, and the other (5) extends to the end of the piezoelectric ply (2) in each case.
3. Piezoelectric actuator according to Claim 1 or 2, characterized in that an insulation layer (15) is applied in the region in which the other internal electrode (5) extended on the non-contacted side to the end lies.
4. Piezoelectric actuator according to Claim 3, characterized in that

- 1 - the external electrodes (14) are composed of an electrically conductive  
2 metal strip, a screen, or net.  
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- 4 5. Piezoelectric actuator according to Claim 1, 2 or 3, characterized in that  
5 - the external electrodes are composed of wave electrodes (7, 8) that bridge  
6 over the other internal electrode (5, 6)—which is extended to the end of  
7 the piezoelectric ply (2) and is not to be contacted—at a specified distance  
8 in the shape of a wave.  
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- 10 6. Piezoelectric actuator according to one of the preceding claims,  
11 characterized in that  
12 - the multilayer structure of piezoelectric plies (2) is provided with an  
13 electrically insulating ceramic plate (12, 13) on each end of the folded  
14 layers.  
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- 16 7. Piezoelectric actuator according to one of the preceding claims,  
17 characterized in that  
18 - the piezoelectric actuator (1) for actuating a mechanical component can  
19 be used like a valve or the like.

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